

### AMENDMENTS TO THE CLAIMS

1. (Currently amended) A laser comprising:  
a substrate comprising a bulk region and a conducting layer;  
an active region comprising a quantum cascade structure provided on a first surface of the substrate such that said active region is electrically connected to said conducting layer, the active region being formed of a plurality of layers having a thickness selected such that the energy spacing of sub bands formed by the layers causes the active region to lase, said active region forming a strip on said first surface of the substrate, said strip having a cleaved facet at each end;  
first and second contacts provided to said conducting layer such that said first and second contacts are electrically connected to said active region, said first and second contacts being disposed on opposite sides of said active region; and  
an active region contact provided to said active region such that a potential may be applied between said active region contact and said first and second contacts to cause said active region to lase, wherein said potential is applied in parallel to said conducting layer by first and second contacts, said active region contact being a metal contact provided overlying said active region on a surface parallel to said first surface of the substrate and wherein emission from said laser is collected from one of said cleaved facets of said active region.
2. (Original) A laser according to claim 1, wherein the conducting layer comprises a highly doped semiconductor.
3. (Original) A laser according to claim 2, wherein the conducting layer is thin enough, such that in operation, the two surface plasmons present at the two interfaces of the conducting layer merge into a single mode.
4. (Previously presented) A laser according to 2, wherein the cascade laser is configured to emit photons having a frequency in the range from 0.02 THz to 100 THz.

Claims 5-6. (Canceled)

7. (Previously presented) A laser according to claim 1, wherein the resistance between the first and active region contacts or second and active region contacts is less than three times the resistance of the active region.

8. (Previously presented) A laser according to claim 1, wherein the resistance between the first and active region contacts or second and active region contacts is less than twice the resistance of the active region.

9. (Previously presented) A laser according to claim 1, wherein said first and second contacts are symmetric about said active region.

10. (Previously presented) A laser according to claim 1, wherein the dielectric constant of the conducting layer is negative relative to the dielectric constant of the surrounding layers.

11. (Previously presented) A laser according to claim 1, wherein the active region comprises a strip waveguide with a trapezoidal cross section.

12. (Previously presented) A laser according to claim 1, wherein the active region comprises a lamination of layers having at least two different band gaps.

Claims 13-15. (Canceled)